

# PATENT SPECIFICATION

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DRAWINGS ATTACHED

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## COMPLETE SPECIFICATION

### Improvements in or relating to Electrical Connectors

We, HEPWORTH ELECTRICAL DEVELOPMENTS LIMITED, a British Company, of Riverholme Works, Holmfirth, Huddersfield, Yorks, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to electrical connectors and has for its object the provision of a connector for a main conductor and at least one branch conductor which is readily applicable and which affords good electrical contact. By "conductor" is meant any one or more cores or strands of a cable, all being round in cross-section or capable of deforming to or grouping into a circular overall cross-section.

According to the present invention, an electrical connector for a main conductor and at least one branch conductor comprises at least two rigid arcuate members of insulating material with overlapping ends, together with pins by which the members may be interlocked to form an annulus, at least one of the rigid arcuate members being provided with a hole parallel to the axis of the annulus and intersecting a recess open to the inside of the annulus, together with a non-rotatable nut in the recess, and a screw fitting the nut and extending into a radial hole to the outside of the annulus.

With a bared end of a branch conductor inserted into the axial hole and extending to between the nut and the back of the recess, the members of the annulus are assembled round an insulated part of a main conductor and interlocked by inserting the pins through the overlapping ends, then the screw is driven through the insulated part of the main conductor into firm engagement and good electrical contact with the main conductor and at the same time urges the nut towards the back of the recess, so that the branch conductor is held firmly and a good electrical connection is

made between the main conductor and the branch conductor.

Advantageously, the overlapping ends each consist of two tongues and two recesses, for an end of one member to be held interlocked to an end of the other member by one of the pins passed through holes in the tongues.

Conveniently, the two rigid arcuate members are identical, each being provided with a hole parallel to the axis of rotation as well as the recess and radial hole, nut and screw, and the same formation of overlapping ends, so that, if necessary, two or more branch conductors or two cores (e.g. line and neutral) of a branch conductor can be connected to one main conductor. However, two members will suffice for connecting a single branch conductor to a main conductor of modest size.

The inner end of the (or each) screw may be pointed, screw-pointed or provided with teeth, so as to facilitate penetration of the insulation of the main conductor; and a "sandwich" consisting of a plain washer, one or more Belleville springwashers, and another plain washer may be interposed between the nut and the back of the recess, to maintain resilient pressure on the branch conductor after the screw has been driven into the main conductor. The recess is conveniently square, the nut (and the plain washers) being correspondingly shaped.

The interlocking pins may be of the rolled steel spring type, and may be inserted behind a tapered pilot serving to bring the holes in the overlapping ends into line with each other—especially when the annulus is a very close fit round the main conductor.

A preferred embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which

Figure 1 is an elevation of an electrical connector according to the invention, partially in section;

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Figure 2 is an elevation of the right-hand side of Figure 1, and

Figure 3 is a plan of the lower half of the connector with all other parts removed.

In the Figures, an electrical connector for a main conductor (not shown) and at least one branch conductor (also not shown) comprises two identical generally semi-cylindrical members 1 of insulating material, e.g., a polycarbonate, with overlapping ends. Each end consist of two tongues 2 and two recesses 3, so that the tongues of the end of one member mesh with the recesses of the corresponding end of the other member, so that the ends thus overlapped can be interlocked by passing rolled steel pins 4 through registering holes 5 in the tongues, to secure the two members in the form of an annulus. Each of the members is provided with a hole 6 parallel to the axis of rotation of the annulus and intersecting a square recess 7 open to the inside 8 of the annulus, together with a square nut 9 in each recess, a screw 10 fitting the nut and extending into a radial hole 11 to the outside of the annulus, and a "sandwich" consisting of a pair of Belleville spring washers 12 between a pair of square washers 13 interposed between the back 14 of the recess and the nut, the outer end of each screw having a slot 15 for engagement by a screwdriver and the inner end having a point 16 the purpose of which will appear presently.

With a bared end of a branch conductor, or one core of a branch conductor, inserted into one or each hole 6 far enough to lie between the nut 9 and the "sandwich" of washers 12, 13, the members 1 are assembled round an insulated part of a main conductor and secured to each other by inserting the pins 4 through the holes 5 in the overlapping tongues 2, and then the or each screw 10 is driven by a screwdriver engaged in the slot 15 to force the point 16 through the insulation of the main conductor and into firm engagement and good electrical contact with the main conductor, the nut 9 at the same time being urged towards the back 14 of the recess 7, so that the branch conductor or core is held firmly between the nut and the "sandwich" of washers 12, 13 for a good electrical connection to be made between the main conductor and the branch conductor.

#### WHAT WE CLAIM IS:—

1. An electrical connector for a main con-

ductor and at least one branch conductor comprising at least two rigid arcuate members of insulating material with overlapping ends, together with pins by which the members may be interlocked to form an annulus, at least one of the rigid arcuate members being provided with a hole parallel to the axis of the annulus and intersecting a recess open to the inside of the annulus, together with a non-rotatable nut in the recess, and a screw fitting the nut extending into a radial hole to the outside of the annulus.

2. An electrical connector as in Claim 1, wherein each rigid arcuate member is provided with a hole parallel to the axis of rotation, as well as the recess and radial hole, nut and screw, and the same formation of overlapping ends.

3. An electrical connector as in Claim 1 or Claim 2, wherein the overlapping ends each consist of two tongues and two recesses, for an end of one member to be held interlocked to an end of the other member by one of the pins passed through holes in the tongues.

4. An electrical connector as in any of Claims 1 to 3, comprising two arcuate members.

5. An electrical connector as in any of Claims 1 to 4, wherein the inner end of the or each screw is pointed, screwpointed or provided with teeth.

6. An electrical connector as in any of Claims 1 to 5, wherein a "sandwich" consisting of a plain washer, one or more Belleville spring washers, and other plain washer is interposed between the nut and the back of the recess.

7. An electrical connector as in any of Claims 1 to 6, wherein the recess is square, the nut being correspondingly shaped.

8. An electrical connector as in any of Claims 1 to 7, wherein the pins are of the rolled steel spring type.

9. An electrical connector for a main conductor and at least one branch conductor substantially as hereinbefore described with reference to the accompanying drawings.

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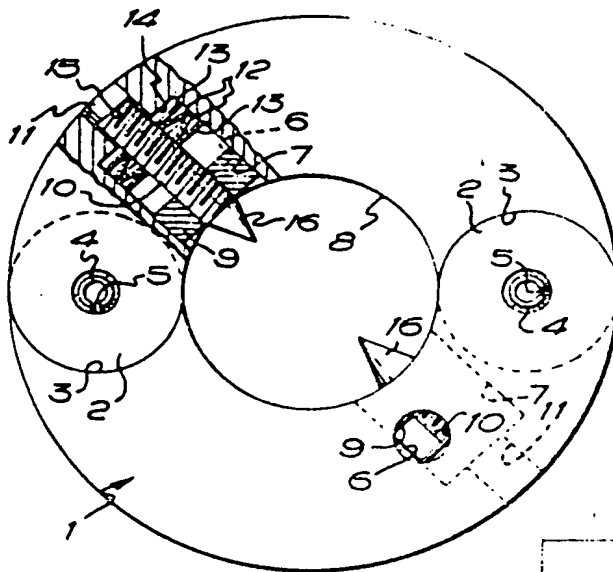


FIG. 1

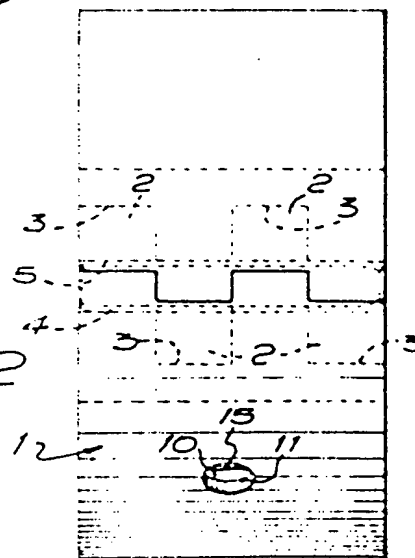


FIG. 2

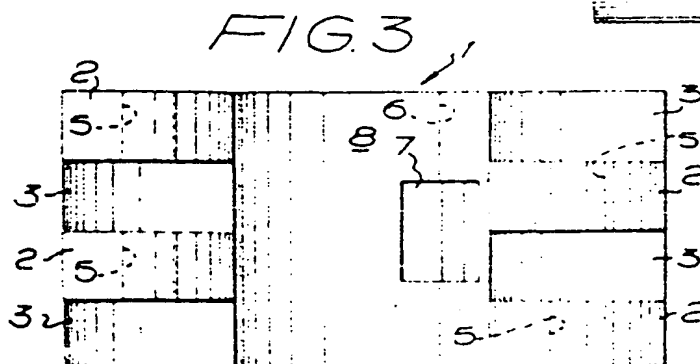


FIG. 3

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